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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,487	03/20/2001	Anthony A. Ruffa	80095	4633

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EXAMINER

JAGAN, MIRELLYS

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/814,487	<b>Applicant(s)</b> RUFFA ET AL	
	<b>Examiner</b> Mirellys Jagan	<b>Art Unit</b> 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☒ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9, 10 and 14-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9, 10, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 7 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1-8, 9, 10, and 14-16 are objected to because of the following informalities:

Claim 1 states that the jacket is concentric with the exterior of the core (see line 8).

However, it is not clear from this limitation how the jacket is structurally related (placed) relative to the core, e.g., is it concentric and spaced from the exterior of the core, or is it concentric and in contact with the exterior of the core? As claimed, it appears that the jacket is spaced from the core and surrounding the armor wires that are located around the exterior of the core (see lines 9-10).

Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim (see claim 1).

In claim 14, "which includes a" should be replaced with, e.g., --wherein the--, since the claim appears to be stating that there is a processing means in addition to the processing means of claim 1.

In claim 16, there is lack of antecedent basis in the disclosure for an optical fiber being enclosed in a steel tube AND surrounded by a bundle of steel armor wires. The disclosure states that either the fiber is surrounded by a steel tube OR is surrounded by a bundle of steel armor wires that are optionally encased by a KEVLAR<sup>TM</sup> sleeve (see page 5, lines 1-11 and 14-15; and page 6, lines 21-24 and 26).

Claims 2, 4-8, 9, 10, and 15 are objected to for being dependent on an objected base claim. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 9, 10, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,198,662 to Yamaguchi et al [hereinafter Yamaguchi] in view of U.S. Patent 5,212,755 to Holmberg.

Yamaguchi discloses a system for measuring a temperature profile of a body of water using an optical fiber tow cable suspended into the body of water from a ship, and a measuring device for continuously measuring temperature at various points along the length of the cable. The cable (4) comprises a core (15) having optic fibers (14) therein and surrounded by steel armor wires (16). The measuring device used OTDR (see figures 5 and 6) and comprises a light source that transmits optical pulses of light into the fibers, a receiver that receives backscattered light (Raman scattering) from the fibers, processing means for analyzing the backscattered light to measure the temperatures of the water along the length of the cable and measure the temperature profile, and a display unit for generating a visual representation (figure 6) of the temperature profile data (see figures 1, 3, and 6; column 3, lines 34-68; and column 4, lines 1-12).

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Yamaguchi does not disclose the fiber optic tow cable comprising a core; a jacket concentric with the exterior of the core; a plurality of steel or KEVLAR<sup>TM</sup> armor wires radially spaced around the exterior of the core and defining at least one layer circumferentially concentric with the core; a plurality of optic fibers spaced around the exterior of the core interspersed among the armor wires in the outermost layer of the at least one layer of armor wires to expose the fibers to the temperature of a fluid; each of the plurality of fibers being enclosed in a steel tube; and a corresponding armor wire being replaced by the fiber in the steel tube, the steel tube having a diameter that is less than or equal to the diameter of the replaced armor wire.

Holmberg discloses a fiber optic tow cable comprising:

a core (22);

a jacket (24) concentric with the exterior of the core;

a plurality of armor wires (26) radially spaced around the exterior of the core and defining one layer circumferentially concentric with the core; wherein the wires can be steel (16) or KEVLAR<sup>TM</sup> fibers (26); and

a plurality of optic fibers spaced around the exterior of the core interspersed among the armor wires (26) in the one layer of armor wires;

wherein each of the fibers are enclosed in a steel tube (18), and a corresponding armor wire is replaced by the fiber in the steel tube, the steel tube having a diameter that is less than or equal to the diameter of the replaced armor wire (see column 2, lines 38-42). The cable is an improvement over prior art cables that have the fiber in the core since the optic fiber is placed outside of the core to reduce strain on the fiber, thereby improving the optical characteristics of the fiber (see figures 1 and 2; column 1, lines 15-63; column 2, line 52-column 3, line 17).

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Referring to claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the cable of Yamaguchi by replacing the tow cable with a tow cable as taught by Holmberg, in order to provide a cable having reduced strain on the fibers thereby obtaining improved temperature measurements.

Furthermore, claim 1 states that there is at least one layer of armor wires, i.e., one layer is present. However, Holmberg also discloses that there can be one layer of armor wires present, i.e., one or more, as stated in column 2, lines 18-19 and 64-65. Therefore, when only one layer is present in the cable of Holmberg, the fibers are considered to be placed in the "outer layer" since there is only one layer of armor wires present.

*Allowable Subject Matter*

4. Claims 7 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and amended to overcome the objections set forth in this Office action.

5. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or suggest the following in combination with the remaining limitations of the claims:

An instrumented fiber optic tow cable system for measuring a temperature profile of a fluid, wherein each of the plurality of optical fibers is surrounded by a plurality of steel armor wires having a smaller diameter than that of the plurality of armor wires.

*Response to Arguments*

6. Applicant's arguments with respect to the fibers being placed in the outer layer since Yamaguchi uses only one layer are not persuasive since the rejections were not based on the one layer of the Yamaguchi patent. The rejections were based on replacing the cable of Yamaguchi with the cable of Holmberg, i.e., the rejections were based on the use of one layer by the Holmberg patent, as explained above in paragraph 3.

Furthermore, Applicant's argument that the Examiner has not demonstrated any suggestion or motivation to combine the references are not persuasive since the Examiner stated that motivation to replace the cable of Yamaguchi with the cable of Holmberg is to provide a cable having reduced strain on the fibers thereby obtaining improved temperature measurements, as repeated above in paragraph 3.

*Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ  
March 15, 2005

  
GAIL VERBITSKY  
PRIMARY EXAMINER